Owner Manual

Packaged Rooftop Air Conditioners

Precedent™ - Gas/Electric
3 to 10 Tons - 60 Hz

Model Number: YSC036E - YSC060E, YSC072F - YSC120F, YHC048F - YHC060F, YZC036E, YZC048F, YZC060E, YHC036E - YHC072E, YHC120E, YHC072F - YHC102F

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

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Cautions, Warnings and Notices

⚠ WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury

⚠ CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE

Indicates a situation that could result in equipment or property-damage only accidents.

Important: Environmental Concerns! *Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs such as HCFCs and HFCs.*

Important: Responsible Refrigerant Practices! *Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified. The Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.*

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General Information

Important: *Remember the following instructions at all times.*

⚠ WARNING

Hazard of Explosion or Fire!

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

IF YOU SMELL GAS, follow instructions below:

- Do not try to light any appliance.
- Do not touch any electrical switch.
- Do not use any phone in your building.
- Open windows and doors.
- Alert others and evacuate building immediately.
- From a phone outside of the building, immediately call your gas supplier. Follow the gas supplier's instructions. If you can not reach your gas supplier, call the fire department.

Failure to follow recommendations listed above could result in death or serious injury and equipment or property damage.

⚠ WARNING

Safety Hazards!

- Do not use this furnace if any portion has been under water as it may have rendered the unit hazardous to operate. Immediately call a qualified service technician to inspect the furnace and to replace any part or the control system and any gas control which has been under water.
- Should overheating occur, or the unit gas valve fail to shut off, close the gas valve to the furnace before shutting off the electrical supply.

Failure to follow recommendations could result in death, serious injury and equipment or property damage.

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⚠ WARNING

Safety Hazards!

- Never perform any maintenance procedures until the electrical power to the unit is turned off.
- Never perform any maintenance procedures until the gas valve is the gas supply line is turned off.
- Never remove any panels from the unit while it is operating.
- Never remove panels or parts from the unit that are not discussed in this manual.
- Never cover the unit since it is designed to operate year round.

Failure to follow recommendations could result in death or serious injury.

Your unit is of complex design. To ensure that it performs safely and gives long lasting services, some of the maintenance work must be performed by a qualified service person.

When a service person is referred to in this manual it is describing a service technician who has had special training or a number of years experience in servicing this type of equipment. It is your responsibility to select a qualified service company that can provide a service person of this caliber.

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Thermostat

Room thermostats are delicate temperature sensing controls. Their main function is to energize and de-energize the heating or cooling circuit to maintain the temperature setting you select.

Many thermostats contain a room thermometer to indicate the approximate room temperature and a temperature scale at the adjustment indicator to select the desired indoor air temperature. In addition, most thermostats have a selector mode switch with Heat, Off and Cool positions and a fan switch with On and Off positions.

When the switch is positioned at Off your unit will not operate in either the heat or cool modes. If the selector switch is set at Heat the unit will automatically cycle on and off to maintain the desired temperature setting. The unit will also operate automatically when the selector switch is positioned at Cool.

The fan selector switch can be used to operate the indoor fan continuously by positioning it at On. When set to Auto the fan will only operate when required during the heating or cooling cycles.

To ensure that the thermostat operates properly, it must be level and positioned to avoid the influence of such external heat sources as lamps, televisions or other heat producing appliances.

Note: *Single Zone VAV is designed to be used with a zone sensor. If a unit is configured for Single Zone VAV operation but is connected to a thermostat, the control will revert to multi-speed (2-Speed) indoor fan control and staged compressor control. This drastically reduces the energy savings available with this design.*

Note: *eFlex™ is designed to be used with a zone sensor. If a unit is configured for variable speed compressor operation but is connected to a thermostat, the control will revert to multi-speed indoor fan control and staged compressor control. This drastically reduces the energy savings available with this design.*

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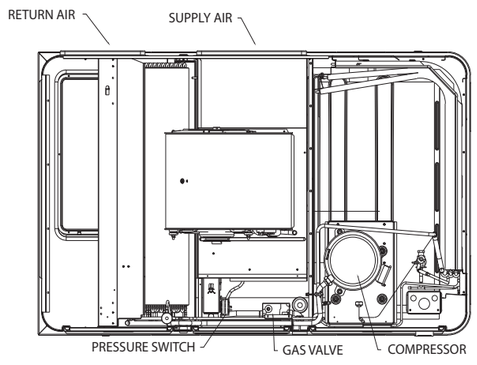
Air Filters

Filters are to be used with this unit. Units ship from the factory with filters installed.

Figure 1. Gas unit overview



It is very important to keep the central duct system air filters clean. Be sure to inspect them at least once each month when the system is in constant operation. (In new homes, check the filters every week for the first 4 weeks.) See Table 1 for the required filter size(s).

If you have disposable type filters, replace them with new filters of the same type and size. Do not attempt to clean disposable filters.

Permanent type filters can be cleaned by washing them with a mild detergent and water. Ensure that the filters are thoroughly dry before reinstalling them in the unit (or duct system).

It may be necessary to replace permanent filters annually if washing fails to clean the filter, be sure to use the same type and size as was originally installed.

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Table 1. Recommended standard filters

Unit Model Number	Filter Size	
	Inches	Millimeters
YH/SC036E*, YHC037E*	(2) 20x30x2	(2) 508x762x50
YZC036E*	(2) 20x30x2	(2) 508x762x50
YSC048E*	(2) 20x30x2	(2) 508x762x50
YZC048F*	(4) 16x25x2	(4) 406x635x50
YSC060E*	(2) 20x30x2	(2) 508x762x50
YZC060E*	(4) 16x25x2	(4) 406x635x50
YHC047E*, YHC048*	(4) 16x25x2	(4) 406x635x50
YHC060*, YHC067E*	(4) 16x25x2	(4) 406x635x50
YSC072F*	(4) 16x25x2	(4) 406x635x50
YSC090F*	(4) 16x25x2	(4) 406x635x50
YHC072F*	(4) 20x25x2	(4) 508x635x50
YSC092F*	(4) 20x25x2	(4) 508x635x50
YSC102F*	(4) 20x25x2	(4) 508x635x50
YSC120F*	(4) 20x25x2	(4) 508x635x50
YHC092F*	(4) 20x25x2	(4) 508x635x50
YHC102F*	(4) 20x25x2	(4) 508x635x50
YHC120E*	(2) 20x30x2	(2) 508x762x50
	(3) 20x25x2	(3) 508x635x50

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Heating System

Heating Cycle Operation

Your unit's heating system has a solid-state electronic ignition control that lights the furnace burners each time the thermostat calls for heat. At the end of each heating cycle the furnace burners are extinguished. This type of system is called Direct Spark Ignition (DSI).

A normal heating cycle begins when the air temperature drops below the thermostat setting. The thermostat then energizes the heating electrical circuit that starts and controls the furnace burners. Shortly after the burners ignite the indoor fan starts and circulates warm air through the conditioned space.

When the air temperature rises to the thermostat setting the thermostat de-energizes the heating electrical circuit, which in turn extinguishes the burners. The indoor fan continues to circulate warm air until most of the heat is removed from the unit's combustion chamber.

Safety Controls

- Your unit is equipped with an automatic reset safety limit control to prevent overheating. When this control opens, it shuts down the heating electrical circuit until the unit cools down sufficiently. Inadequate airflow (i.e., caused by dirty filters or defective fan motor) may cause the unit to cycle on and off as the limit trips and automatically resets. If you suspect that the unit is cycling on its limit control, immediately contact a service person for instructions.
- If flames from the burner are not properly drawn into the heat exchanger, a Flame Rollout Protection Control will open causing the furnace to shut off. The cause must be investigated by a qualified service person.
- If installed, the condensate overflow switch will shut down the unit before a drain pan overflow occurs.

Heating System Start-Up

Because your unit has an automatic ignition system, it is easy to start the heating cycle at the beginning of the heating season. In order for the unit to operate properly and safely, the furnace needs air for both combustion and ventilation. Check to make sure that all air openings are unobstructed and there is adequate clearance around the unit to provide good air flow.

⚠ WARNING

Hazardous Voltage w/ Capacitors!

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

1. Set the thermostat's heating adjustment lever at its lowest setting.
2. Move the selector switch to the Off position.
3. Turn off all electric power to the unit.

⚠ WARNING

Risk of Burn!

NEVER attempt to manually light the burner! Failure to follow this recommendation could result in serious injury.

4. This unit is equipped with an ignition device which automatically lights the burners.
5. Remove the access panel that contains the following label:

Figure 2. Label

REMOVE THIS PANEL
TO GAIN ACCESS TO
THE GAS VALVE

6. Change the ON/OFF switch to the OFF position.

Note: *Some valves require the knob to be pushed in slightly before turning.*

7. Wait (5) minutes to clear out any gas. If you then smell gas, STOP! Refer to the warnings provided in the "General Information" section. If you do not smell gas, go to the next step.
8. Change the ON/OFF switch to the ON position.
9. Replace panel removed in step 5 above.
10. Turn on all electric power to unit.
11. Set thermostat to desired temperature and move the selector switch to the ON position. The unit will now operate automatically.
12. If the unit will not operate, follow the instructions "To Turn Off Gas To Unit" (under Heating System Shutdown) and call your service technician or gas supplier.

Important: *The unit is to be adjusted to obtain an air rise within that specified on the nameplate.*

Heating System Shutdown

To shut down the heating system for brief periods of time simply adjust the thermostat selector switch to the "Off" position.

NOTICE

Property Damage!

If the unit is shut down during the cold weather months, provisions must be taken to prevent freeze-up of all water pipes and water receptacles. Whenever your house or building is to be vacant, arrange to have someone inspect your structure for proper temperature. This is very important in below freezing weather. If for any reason your furnace should fail to operate, damage such as frozen water pipes could result.

How To Turn Off Gas To Unit

1. Set the thermostat to lowest setting.

⚠ WARNING

Hazardous Voltage w/ Capacitors!

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

2. Turn off all electric power to the unit if service is to be performed.
3. Remove the access panel that contains the label shown in Figure 2.
4. Change ON/OFF switch to the "OFF" position.
5. Replace panel removed in step 3 above.

Heating System Maintenance

Complete the following unit inspections and service routines at the beginning of each heating season.

Refer to the warnings in "General Information" regarding combustible materials and what to do if you smell gas.

Important: *These steps should only be performed by a qualified service technician.*

1. Inspect the control panel wiring and heating controls to make sure connections are tight and wiring insulation is intact.
2. Turn the unit on and off at the thermostat to be sure the ignition control and spark electrode are operating properly.
3. Turn off the gas supply with the unit operating to verify that the gas valves closes and that a re-ignition cycle is initiated by the ignition control.
4. Check the operation of the gas ignition system.
5. Check the burner manifold pressure. A 1/8 inch pipe plug is provided in the gas valve for this purpose.
6. Visually inspect all of the unit's flue product passage ways for excessive deposit build up and corrosion. If build up or corrosion is apparent, perform the necessary repairs.
7. Arrange for a qualified serviceman to inspect the unit every other heating season to maintain safe and efficient operation.
8. Visually check the main burner flames. They should be bright blue flames extending into the heat exchanger sections.
9. Never store anything flammable or combustible around or near the unit.

Condensate Overflow Sensor (Optional)

If installed, the Condensate overflow switch will shut down the unit before a drain pan overflow occurs.

The manufacturer optimizes the performance of homes and buildings around the world. A business of Ingersoll Rand, the leader in creating and sustaining safe, comfortable and energy efficient environments, the manufacturer offers a broad portfolio of advanced controls and HVAC systems, comprehensive building services, and parts. For more information, visit www.IRCO.com.

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